



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/621,459	07/18/2003	Andrej Petef	040072-246	1131

7590 06/03/2005
BURNS, DOANE, SWECKER & MATHIS, L.L.P.
P.O. Box 1404
Alexandria, VA 22313-1404

EXAMINER

WARREN, DAVID S

ART UNIT PAPER NUMBER

2837

DATE MAILED: 06/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,459

Applicant(s)

PETEF, ANDREJ

Examiner

David S. Warren

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-19 and 21-29 is/are rejected.
- 7) ☒ Claim(s) 10, 20 and 30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 5, 6, 8, 9, 11, 15, 16, 18, 19, 21, 25, 26, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya (5,850,049). Regarding independent claims 1, 11, and 21, Kamiya discloses the use of determining a CPU load (col. 11, fifth paragraph). By setting an "optimum" value "according to... CPU load," Kamiya provides the functional equivalent of "determining" CPU load. Kamiya does not explicitly teach "determining an interpolation degree based on the present CPU loading." However, Kamiya does disclose adjusting both the sampling rate and the interpolation rate to reduce CPU loading. Kamiya states (col. 2, lines 45 – 52):

It is a first object of the invention to provide a musical tone-generating method and a musical tone-generating apparatus which are capable of preventing the energy of high-frequency components of musical tones from being decreased even when the sampling rate of waveform samples is lowered to decrease load on a CPU (central processing unit) in executing waveform-generating operations to generate musical tones. [Emphasis added]

Kamiya also states (col. 7, third paragraph):

Further, the inhibition of interpolation results in a decreased amount of operation, thereby further decreasing the processing load on the CPU.

Therefore, Kamiya states that both the interpolation and sampling rate affect CPU load. Kamiya also states that the “sampling rate [can be] automatically set according to the processing capability of the CPU or load thereon.” [Emphasis added]. It would have been obvious to one of ordinary skill in the art to establish the interpolation degree in accordance with the CPU loading. The motivation for making use of this feature is to increase CPU stability and speed.

In summary, the rejection of claims 1, 11, and 21 is as follows:

- Kamiya discloses the use of reducing sampling rate and interpolation to decrease CPU loading (i.e., both sampling and interpolation affect load).
- Kamiya discloses automatically setting sampling rate in accordance with CPU load.
- One of ordinary skill would infer to set interpolation in accordance with CPU load.

Regarding claims 5, 6, 15, 16, 25, and 26, Kamiya discloses the use of two interpolation degrees (col. 3, lines 4 – 9) each of which would place different loading on the CPU. One of ordinary skill would select an increased (or decreased) interpolation method when CPU load is decreased (or increased). Regarding claims 8, 18, and 28, Kamiya discloses modifying interpolation and sampling rates in accordance with voices (col. 3, lines 10 – 15), Kamiya states:

Preferably, when the second sampling frequency is selected as the predetermined sampling frequency, the interpolation of the waveform data read from the waveform table is inhibited when a musical tone having a particular tone color is to be generated from the waveform data.

Regarding claims 9, 19, and 29, since Kamiya discloses altering interpolation to reduce load (and one of ordinary skill would select an interpolation degree based on load) in accordance with voice data – the use of an “identity” appears to be functionally equivalent to Applicant’s limitation in claims 9, 19, and 29 – in other words, Kamiya must, somehow, identify each voice and when to apply a first and/or second interpolation degree.

3. Claims 2 – 4, 7, 12 – 14, 17, 22 – 24, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamiya in view of Ashour et al. (5,808,221). The teachings of Kamiya have been discussed supra. Kamiya does not disclose the use of comparing CPU load with a predefined permissible maximum CPU load for determining an interpolation degree. Ashour discloses “the audio synthesizer uses a mechanisms for repeatedly measuring the load on the CPU” (col. 2, fourth paragraph). Ashour also discloses the use of a CPU load threshold for controlling note ON and note OFF control data (col. 3, lines 30 – 41). The use of Kamiya’s threshold is deemed to be synonymous to Applicant’s “predefined permissible maximum CPU load.” Regarding claims 4, 14, and 24, the Applicant is essentially turning off a song where the song quality is degraded. Certainly one of ordinary skill would not seek to listen to awful sound quality and turning it off is an obvious action using common sense. It would have been obvious to one of ordinary skill in the art to combine the teachings of Kamiya and Ashour to obtain a wavetable synthesizer wherein a maximum permissible CPU is used

to ascertain interpolation degree. The motivation for making this combination is to reduce computing dropouts and intolerable song degradation.

Allowable Subject Matter

4. Claims 10, 20, and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art is silent as to detecting a newly deactivated voice, determining CPU load that corresponds to he newly deactivated voice, and subtracting the corresponding CPU load value from and accumulated CPU load estimate.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Warren whose telephone number is 571-272-2076. The examiner can normally be reached on M-F, 9:30 A.M. to 6:30 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 37. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 2837

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dsw


MARLON T. FLETCHER
PRIMARY EXAMINER